

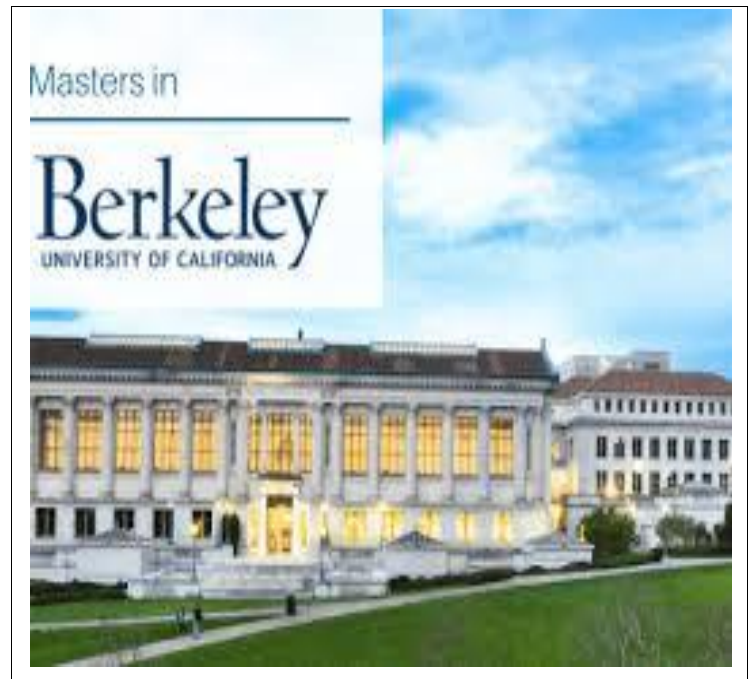


## C4 grasses may outcompete CAM plants under increased rainfall variability

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**Abstract** Both climate modelling and empirical studies suggest that rainfall events are becoming more extreme globally even though the total amount of rainfall remains relatively unchanged. The increase in rainfall variability has significant impacts on community dynamics, ecosystem structure and functioning especially in drylands where plant growth is primarily constrained by water availability. Plants with Crassulacean Acid Metabolism (CAM) are increasing their abundance in many dryland ecosystems worldwide, while the mechanisms underlying it remain unclear. Although changes in rainfall regime are possibly one of the important drivers, experimental evidence is lacking. We investigated the effect of increasing intraseasonal rainfall variability on the growth of two separate pairs of coexisting CAM and C4 grass species (*C. imbricata* and *B. eriopoda*; *O. phaeacantha* and *B. curtipendula*) in semiarid ecosystems across the southwest USA. Our results show that the increased rainfall variability significantly decreased the biomass of *C. imbricata* while increasing the biomass of *B. eriopoda* in mixture. More extreme rainfall regimes caused only a 24.8% decrease in biomass of *B. curtipendula* compared with a 71.3% decline in *O. phaeacantha*. The significant lower nocturnal carbon assimilation rate and higher stem volume:surface ratio were found in CAM plants in mixture than in monoculture



**Biography:** Heng Huang is a PhD candidate at the University of California, Berkeley. He studies climate change, vegetation dynamics and ecosystem stability. He has published 13 papers in international journals including *iScience*, *Ecology*, and *The American Naturalist*.

### Publications:

1. Evaluating the Mechanical Properties of Admixed Blended Cement Pastes and Estimating its Kinetics of Hydration by Different Techniques
2. Genetic Diversity Using Random Amplified Polymorphic DNA (RAPD) Analysis for *Aspergillus niger* isolates
3. Au–Ag–Cu nanoparticles alloys showed antifungal activity against the antibiotics-resistant *Candida albicans*
4. Induce mutations for Bavistin resistance in *Trichoderma harzianum* by UV-irradiation
5. Biliary Sludge. Analysis of a Clinical Case

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